LED Slit Lamp

XL-1

Operations Manual

SHIN-NIPPON

The contents of this Instruction Manual may be changed without prior notice

D06-S05-0605e Rev1.1

Exemption

Ohira will not bear any responsibilities on the following matters.

1. The trouble and/or damage caused by the results not observing the Notes on Safety or the operational method mentioned in this Instruction Manual
2. Under the circumstances not within the operating conditions of this unit including the power source or the setting environment mentioned in this Instruction Manual
3. The trouble and/or damage caused by the result(s) of remodeling or improper repair of the product
4. When a trouble and/or damage occurs caused by the maintenance and/or repair conducted by a person other than Ohira or the dealer specified by Ajinomoto trading
5. The trouble and/or damage of Ohira product caused by the product of other manufacturer not delivered by Ohira
6. The trouble and/or damage caused by the maintenance and/or repair using the repair parts not specified by Ohira.
7. The trouble and/or damage caused by act of god such as fire, earthquake, flood, or thunders

1. The contents of this Instruction Manual may be changed without prior notice.
2. We have prepared the contents of this Instruction Manual with thoroughgoing measures. However, if an inadequate description or error is found, please let us know.
3. It is prohibited to copy a part or an entire part of this Instruction Manual without getting Ohira's permission.

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1. Safety consideration

- Please read this Instruction Manual thoroughly to ensure safe and correct use of the product.
- General definitions of safety symbols are indicated below

In the symbol for this operation manual and product, in order to use a product correctly, various symbol indication is given.

Please read the text after understanding the following contents well.

indication	definition
Warning	The word “WARNING” is intended to alert the user to extremely important instructions, procedures, or conditions which, if not correctly followed, could result in equipment failure personal injury or death.
Caution	The word “CAUTION” is intended to alert the user to special instructions, procedures or conditions, which may cause personal injury or equipment failure.
	This symbol calls attention to an action that must be done.
	This symbol calls attention to an action that must not be done. The instruction for the prohibited act is associated with this symbol.

Warning	
At no time attempt to remodel or disassemble this product. Damage to the product or personal injury will result.	
Since it is a product for ophthalmology, please do not operate it other than people with special knowledge. Damage to the product or personal injury will result.	

Caution	
Please do not deal with product violently. It becomes the causality of failure.	
When this product breaks down, or when bad conditions arise, please inform a dealer immediately. It will become the causality of an accident if it continues using it in the condition of having broken down.	

When smoke comes out or the burning smell occurs, please extract a battery from a product immediately. When abnormalities, like there is a nasty smell during battery charge occur, please stop charging it and pull out a power supply plug from a plug socket.	
Do not short-circuit the polarities of the battery pack with a metal object such as wire.	
When you do not use it for a long period of time, please pull out and keep a battery from product. Since product is in a standby state, very little current flows and a battery is exhausted.	
Avoid storage or use of the product under the following conditions: 1) In an environment where the temperature falls below +10°C or exceeds +35°C. 2) Where noxious gases or air pollutants are present. 3) High humidity environment. 4) Where water drop environment. 5) Where dust and grit may occur. 6) Where oil fumes or greasy substances are emitted. 7) Where there are atmospheric concentrations of salt. 8) Near gas generation areas and places where dust accumulates. 9) Do not expose to strong vibrations (areas of seismic activity) and sudden shocks (this includes transportation) etc. 10) A place with the tilt angle of 10 degrees or more . 11) The place exposed to direct sunlight. 12) he place exposed to the radiated electromagnetic field.	
Please do not touch optical parts with a finger. It becomes the cause by which an observation image worsens.	
For a long time, please do not irradiate a patient's pupil. High brightness white LED is adopted as the light source, and, in the maximum illumination, it is about 10,000 luxs in illuminance in full open about slit light. In the short-time usual busy condition, it is as safe as the LED class I. It is the class to which it is classified into the LED class II in emission time for 30,000 seconds, and safety is guaranteed at the dislike reaction of an eye. Please do not irradiate LED illumination to a pupil for a long time. The trouble of eyesight declining may be caused.	
When you discard a lithium ion battery, please discard according to the regulations of a local self-governing body.	 Li-ion

2. Product outline

2.1. Product application

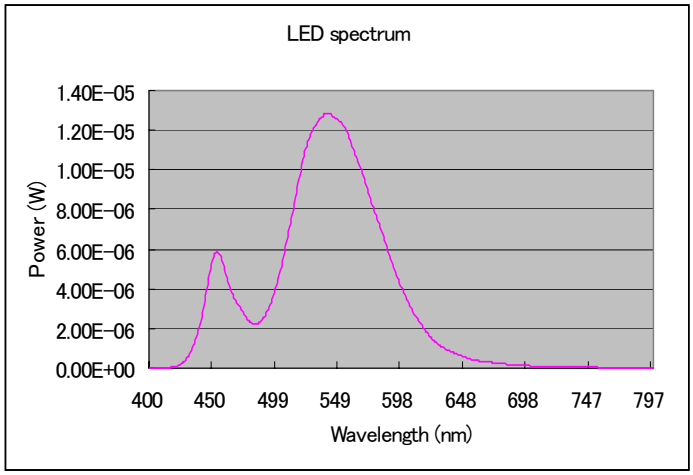
LED SLIT LAMP XL-1 is a Slit Lamp Microscope for irradiating a Slit light strong against the transparent bodies, such as a cornea of an eyeball, and a crystalline lens, from slant, carrying out optical cutting, floating a minute abnormality up and carrying out expansion observation of this by the stereomicroscope by scattering of the detailed substance under tissue. High brightness white LED is adopted as the light source, and product-life cycle is long.

2.2. Feature

■ **High brightness white LED**

The brightness of about 10,000 luxs was secured by adoption of the high brightness white LED light source, and the life of a lamp became long.

***The life of LED is 50,000 hours or more.**



■ **Sharp slit light**

Though it is LED SLIT LAMP, a sharp slit light can be offered, and slit width can also be adjusted freely.

■ **Small and lightweight**

Since it is small and lightweight, it can use easily in the case of a medical care service at home.
You can use for the medical care of the eye of a small animal etc.

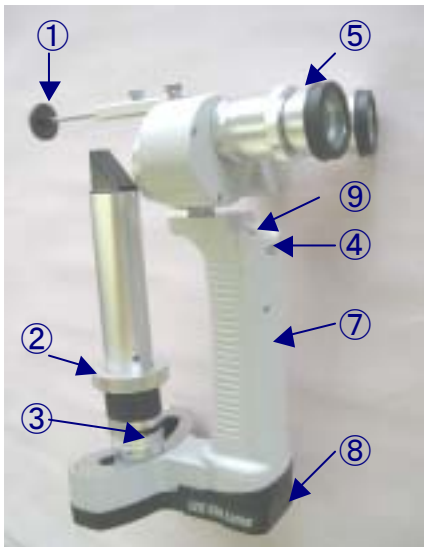
■ **Filter function (illumination system)**

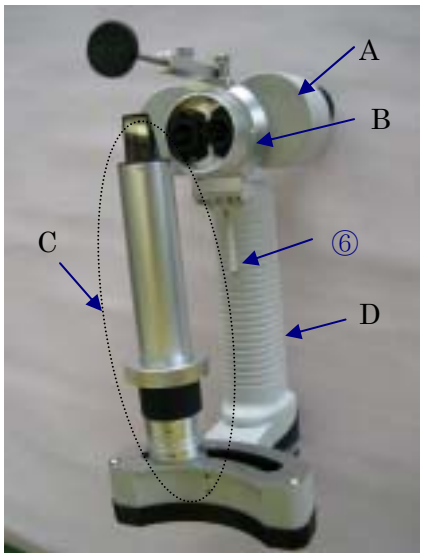
Selectable of the various filter such as the Cobalt blue, green, conversion filter for color temperature.

■ **Battery drive**

Continuous operation is about 2 hours possible with a battery. (in full charged state)
The operating time changes with amounts of illumination and remaining battery level.

3. Components of the product





① Forehead support
② Slit opening and shutting ring
③ Filter rotation
④ Illumination control
⑤ Eyepiece (10X standard)
⑥ Illumination ON/OFF switch
⑦ Grip
⑧ Battery accommodation part（7.4V 680mA Li-ion）
⑨ Battery indication

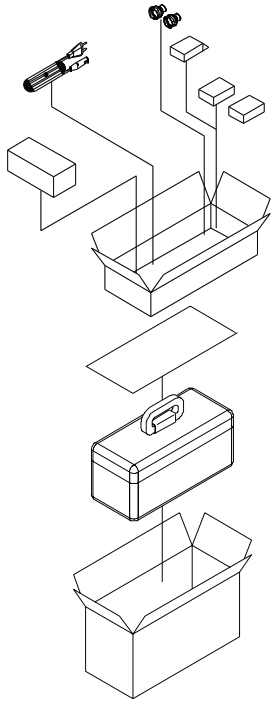
A Microscope (binocular part)
B Microscope (objective lens part)
C Illumination part
D Main body

⑩Forehead support

⑫Battery charger

⑪Diopter adjustment bar

Eyepiece (16X Option)



Unpacking image

4. Prior preparation

Please take out a main part, a diopter adjustment bar, a forehead support, a battery, etc. from a carrying case. Next, please insert a battery in the main part battery accommodation section firmly.

Unless it is inserted firmly, it may be unable to illuminate, or a battery may fall.

Cautions:

When the capacity of a battery is falling, using a battery charger, please charge beforehand and use. The charging time is about 2 hours. The CHARGE lamp will start to blink. Charging is complete when the CHARGE lamp continues to glow.

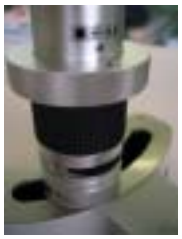
5. Preparation before use

5.1. The check of an eyepiece

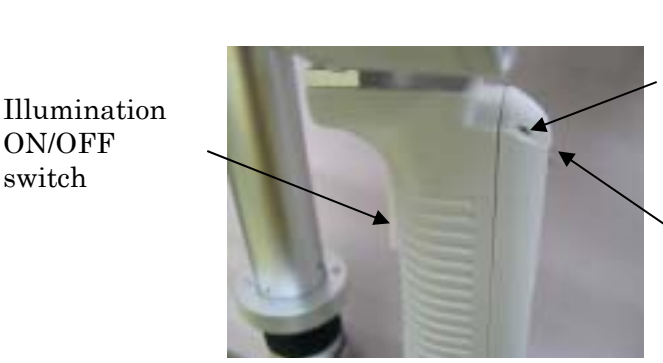
1) Please check an eyepiece loosening in an eyepiece cylinder 10X, and being mounted in it that there is nothing.
   It is correctly unobservable if eyepiece is loosening.
2) Please check that there is no dirt, such as a fingerprint, on the eyepiece surface.
3) In case of 16X eyepieces (option) are used, please take out the 10X eyepieces from binocular before attaching the 16X eyepieces.

5.2. The check of illumination light

1) Please turn a slit opening-and-closing ring clockwise, and open a slit to the maximum.



2) Please push a lighting ON/OFF switch. A round illumination light is seen.
When illumination is not obtained, please check whether the slit opening-and-closing ring is open. When it is open and illumination is not obtained, battery capacity is falling. In this case, please charge a battery.


Illumination ON/OFF switch
It blinks, when there is low battery capacity. If battery voltage becomes less than 6V, a power supply will be turned off automatically.
Illumination control

3) Next, please check rotating a filter and being illuminated by Non-filter, green, blue, and conversion filter for color temperature.

Non-filter

Green

Blue

Color temperature conversion filter

6. How to use

6.1. Diopter adjustment

1) When the diopter is known, please carry out diopter adjustment with a diopter scale.
2) When you attach a diopter adjustment bar and you adjust a diopter, please adjust in the following procedures.
   ① Please loosen and remove the attachment screw of a forehead support and attach a diopter adjustment bar.
   ② Please turn ON illumination, and perform diopter adjustment of both of right and left so that you observe a diopter adjustment bar from an ocular and a focus matches. (The working distance is designed by about 80mm)

6.2. Pupil-distance adjustment

Please rotate the lens-barrel of the binocular section, and when you see an eyepiece part with both eyes, adjust the PD to become one image.
When not visible to one image, it is possible that the diopter adjustment cannot be performed appropriately. In this case, please perform a diopter adjustment once again.

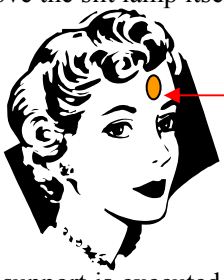
6.3. Illumination control

A illumination ON/OFF switch is turned ON, illumination control volume is turned, and the quantity of illumination is adjusted.

If it turns to right-hand side, it will become bright, and it will become dark if it turns to left-hand side. In the maximum illumination, the illuminance without a filter is about 10,000 luxs.
* Turn on LED at the upper left of illumination control volume at the time of the illumination switch ON. In addition, when battery capacity has decreased, it blinks, and the light will be put out if it becomes less than 6V.

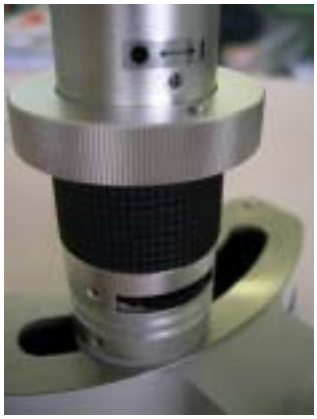
6.4. Focusing

Apply the forehead support to the patient's forehead, next loosen the clamping control while observing the eye with the eyepiece and move the slit lamp itself forward and backward to focus on the subject part.



(Note) Since the forehead support is executed with a spring, even if the slit lamp itself drawn forward, it will not leave the forehead of the patient easily.

6.5. Slit opening and shutting ring

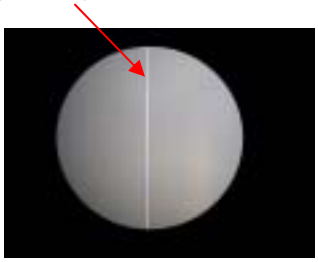


Turn the slit opening and shutting ring to adjust the slit width.

Clockwise---------- Open
Counterclockwise-------- Close

Slit width: 0-11mm Stepless adjustment

Slit image

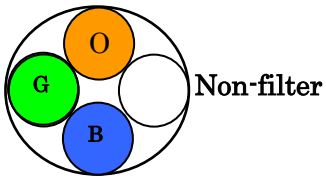


6.6. Illumination angle

Illumination angle, pick the slide ring with fingers and move it right and left +/- 30 degrees.

6.7. Filter

By rotating a filter, G (green), B (cobalt blue), O (conversion filter for color temperature), and those without a Non filter can be chosen as an illumination system. Please use properly according to the use of observation.
A color temperature change filter serves as illumination near daylight color.



6.8. Change of magnification

A change of magnification is made by exchange of an eyepiece. (Standard 10X, 16X as option)
After exchange of an eyepiece should carry out a diopter adjustment (check) again.

6.9. About charge of a battery

1) Battery information
   - Type and a name of a battery: NIKON pure battery or equivalent battery
   - Polarity of a battery

   - The exchange method of a battery: From a main body to remove and exchange
   - Disposal of a used battery: Please discard according to the regulations of a local self-governing body.

2) The first use and when you do not use it for a long time, please be sure to charge.
   About 1 hour charge at empty level. (charge time is changed due to remaining power level)
3) The adapter for charge can be supplied from AC100 - 240V power supply, and can be charged.
   Be careful of handling plentifully and charge it correctly.

4) The CHARGE lamp will start to blink during charge. Charging is complete when the CHARGE lamp continues to glow.

CHARGE lamp

7. After use

1) After use should clean a main body and should keep it cleanly.
2) Please remove a battery, when you do not use it for a long period of time, and keep a product in the carrying case of exclusive use carefully.
3) When the display lamp of remaining battery level blinks, please remove a battery from main body and charge a battery.

8. Daily maintenance

1) An eyepiece and objective lens cover glass
   To clean off the surface of an eyepiece and/or objective lens cover glass, please use lens paper or soft cloth. If it has fingerprint or fatty oil, mist lens paper or soft cloth with alcohol to clean off.

2) Mirror
   By viewing, the mirror for illumination of the illumination output section checks the existence of a crack.
   Cleaning of dart, please use lens paper or soft cloth. If it has fingerprint or fatty oil, mist lens paper or soft cloth with alcohol to clean off.

3) Please check that the operation like each part is smooth. Please consult with a dealer, when fault is discovered in an operation.

9. For safety operation

1) After the completion of charge should remove a battery from a battery charger promptly.
   Keep in mind the charge state of 2 hours or more that there is risk of overcharge.
2) About 300 charge or more is possible for a battery. The number of recharge is changed due to the remaining battery level. A battery life can be extended by charging, after remaining battery level has decreased if possible.

10. Specifications

Microscope	
Eyepiece	10X and 16X(Option)
Objective lens	1X
Total magnifications	10X and 16X(Option)
Diopter adjustment	±7D
Visual field	ϕ10mm
	50-75mm (at eyepiece 10X 55-70mm (at eyepiece 16X)
Working Distance (W.D.)	80mm
Illumination	
Slit width	0-11mm Stepless adjustment is possible
Slit length	11mm
Filter	Cobalt blue, Green, Color temperature conversion filter
Illumination angle	On the level circumference ±30 degrees
Light source	
Light source	High brightness white LED
Battery	
Voltage	Li-ion battery 7.4V 680mAh
Operation time	about 2 hours (at full charge with maximum illumination)
Charger	
Input Voltage	AC 100-240V 60-50Hz
output voltage	DC 8.4V/600mA
Standard accessories	
Carrying case	1 pc
battery charger	1 pc
Forehead support	1 pc
Diopter adjustment bar	1 pc
Instruction manual	1pc
Option	
eyepiece	16X (1set)
spare battery	7.4V 680mAh (1pc)
General	
Operating Temperature and humidity	10～35℃, RH45～85%
Dimension	195mm(W)X105mm(D)X230mm(H)
weight	about 700g
Electric shock protection method	Internal Battery type, Type B

Medical instrument class: Class 1 without measuring function
UMDNS Number:12-281

CE Conformity

This product conforms MDD standard for compliance with EC directive 93/42/EEC ANNEX II,V and VII, with reference article 1 and 3 of EC directive 93/42/EEC.

EU Representative

FAUSTO GUZZETTI (SHIN-NIPPON TECHNICAL CENTER)

VIA SOLFERINO,5 21057 OLGIATE OLONA(VA), Italy

Supplied by

AJINOMOTO®

AJINOMOTO TRADING, INC.

SHIN-NIPPON Medical & Ophthalmic Instruments Dept.

East Wing 7F, TFT Building, 3-1-22 Ariake, Koto-Ku, Tokyo 135-8071, JAPAN

TEL:813-3528-4416 FAX: 813-3528-4426

http://www.shin-nippon.jp http://www.ajitrade.com

Manufactured by

Ohira Co., Ltd

258 Nishi Izumida, Minami-Uonuma, Niigata 949-6615, JAPAN

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